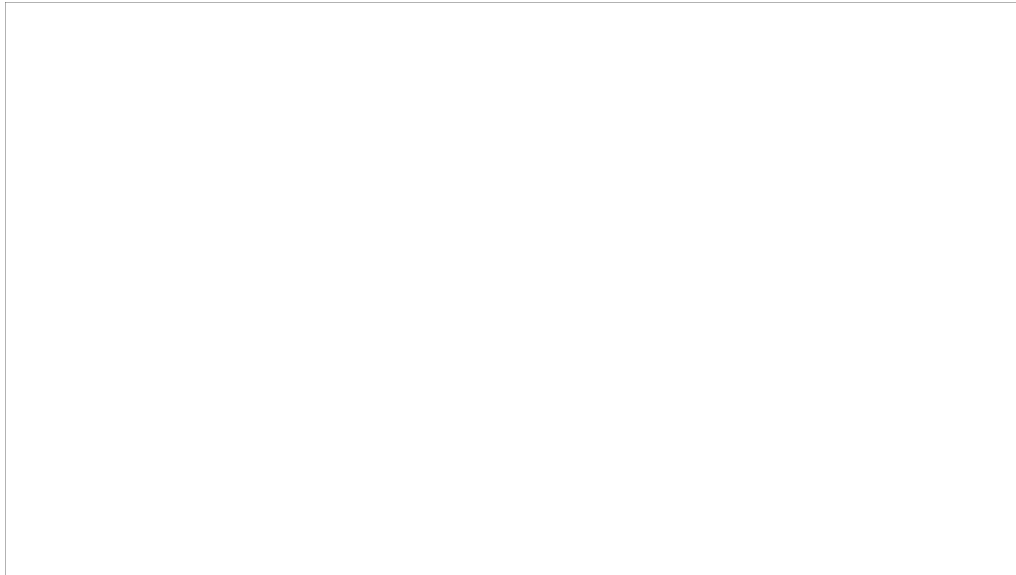


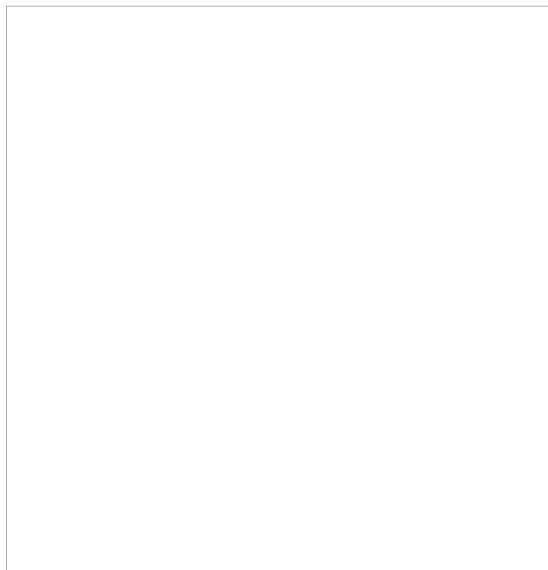
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Overhaul Schedules For Soviet Coal Mining Machines, With Lists of Parts,

Giving Duration of Service

Spravochnik po Srokam Sluzhby Detaley Gornykh Mashin i
Garantiynym Srokam Sluzhby Gornykh Mashin Posle ikh Remonta.
Part 1. All-Union Scientific-Research Institute for Coal.
Moscow, 1949



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CONFIDENTIAL**OVERHAUL SCHEDULES FOR SOVIET COAL MINING MACHINES WITH LISTS OF PARTS,
GIVING DURATION OF SERVICE**

Maintenance and repair of Soviet coal-mining machines is put into 4 classifications, progressing in extent and thoroughness: inspection, current overhaul, intermediate overhaul, and capital overhaul. The specifications, overhaul programs, and parts lists for two of the machines described in the catalogue have been translated completely. Since these machines, the KMP-1 and the GTH-34, go into the make-up of some of the combines, much of the data given for them may also be applied to the combines.⁷

The overhaul schedules and figures on the useful duration of parts are based on tests run on the machines in eastern coal fields during the period 1947-49. Conducted under the supervision of the All-Union Scientific-Research Institute for Coal (VUZ), the tests drew on the experience of the machine operators and on design data supplied by the manufacturing plants.

The minimum limits of service for the machines between overhauls are drawn up with the assumption that the machines will run without breakdowns of any kind during these periods. Inspections, however, are to be carried out weekly, regardless of the condition of the machine.

The KMP-1 Cutting Machine: Specifications

Length (mm) [including cutter bar]	5,435
Width (mm)	750
Height (mm)	360
Weight (kg)	3,274
Feed speed, working (m/min)	0-0.86

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Feed speed, maneuvering (m/min)	8.6
Maximum emergency tractive force, working speed (kg)	20,000
Rated tractive force, working speed (kg)	5,000
Tractive force, maneuvering speed (kg)	3,000
Speed regulating device	Pulvator
Type electric motor	EA-191/B
Hourly capacity of motor (kw)	1.7
Voltage	220/230
Motor speed (rpm)	1,475
Type plug connector	QW-2675-A
Remote control device	Block-contact controller
Rope diameter (mm)	15-17
Rope drum capacity (m)	25
Sagmaster speed (rpm)	135

The MRF-1: Maintenance and Repair Schedule

- Weekly inspection calls for the following steps:
- Replace broken bits; replace set screws which have stripped threads.
 - Check bar cover plates for missing nuts and bolts and replace as necessary.
 - Check all parts for lubrication. Clean out oil canals in electric motor housing. Check operation of motor by bar.
 - Test all control levers for ease of operation.
 - Clean or replace overheated controller contacts. Clean oil and dirt from controller compartment.
 - Clean contact pins and sockets of plug connector; replace worn and defective parts. Check and adjust plug connector interlock.

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Check cable for exposed strands and any flaws which might call for vulcanizing.

Check rope, replacing if worn.

Check idling operation of machine.

Determine extent of current overhaul required.

Inspection is performed at the working area by a brigade of electrician-mechanics working with a mechanic of the section. Work performed during repair shift.

Current overhaul includes all the steps of inspection and the following additional ones:

Replace cutter chain with new or reconditioned one. Send worn out chain out of mine for new connector pins. General reconditioning.

Replace bar cover plates with spare ones.

Replace slide blocks of clutch fork in cutter section.

Check main shaft and pulser in feed section.

Check bearings. Change lubrication.

Replace controller with new or reconditioned one; send removed controller to mine shops for drying and repair.

Check idling operation of machine. Plan extent of next overhaul.

Current overhaul is carried out at the work area during a repair shift by a brigade of electrician-mechanics under the direct supervision of a section mechanic.

Intermediate overhaul includes all the steps of current overhaul and the following additional ones:

Strip down machine to its basic parts; clean and wash them in kerosene.

Replace worn parts with spares.

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Replace slide blocks of clutch fork, cutter section (part No 61216).

Replace bushing around bugduster transmission shaft (part No 61115).

Replace bar and cutter chain; send removed bar and chain out for repair if worn out.

Replace bearings Nos 212, 3524, 3616, 8214, and 314.

Take down, reassemble, and adjust friction clutch in feed section (part No 60959); replace worn disks.

Replace spring (part No 60235) of the pulsator. [The pulsator is a mechanism in the feed section which periodically engages and disengages the friction clutch. The feed speed increases in proportion to the length of time during which the clutch is engaged.] Replace thrust bearing (part No 61149) [of the pulsator].

Replace shaft bushing (part No 60996).

Wash and dry electric motor. Laguer end windings of stator. Check effectiveness of insulation.

Check operation of machine and regulate as necessary.

Intermediate overhaul is carried out in mine machine shop by a brigade of electrician-mechanics under the supervision of the shop foreman. Work is not to exceed 4 days' duration.

[Capital overhaul essentially the same as for GTK-3M, page 22]

The machine's duration of service between overhauls (in months) is as follows:

Time between current overhauls:

Hard cutting conditions	1
Average cutting conditions	1.5

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Time between intermediate overhauls:

Hard cutting conditions	3
Average cutting conditions	4.5

Time between capital overhauls:

Hard cutting conditions	12
Average cutting conditions	18

Generally, overhauls are carried out in the following order:

Current, current, intermediate;
 current, current, intermediate;
 current, current, intermediate;
 current, current, capital.

The number of overhauls which the machine undergoes during one year are as follows:

Current overhauls:

Hard cutting conditions	8
Average cutting conditions	6

Intermediate overhauls:

Hard cutting conditions	3
Average cutting conditions	2

Capital overhauls:

Hard cutting conditions	1
Average cutting conditions	0.67

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Order No	Drwg No	Description of part	Material	Weight, kg	No of parts in machine	Duration of service, in months:		No of parts used for ten machines during one year of cutting:	
						Hard cutting	Average cutting	Hard cutting	Average cutting
(Parts of cutter section)									
1		Roller bearing, radial, spherical, double row; intermediate series, OST 7634-39; conditional designation - 3612	Part rec'd ready made	3	2	6	9	40	28
2		Roller bearing, radial, spherical, double row; intermediate series, OST 7634-39; conditional designation 3614	" "	4.4	1	6	9	20	14
3		Roller bearing, radial, spherical, double row; intermediate series, OST 7634-39; conditional designation 3615	" "	6.4	1	6	9	20	14
4		Roller bearing, radial, spherical, double row; light series, OST 6771-39; conditional designation 3524	" "	9.4	2	12	15	20	14

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5	Ball bearing, radial, single row; light series, OST 6121-39; conditional designation 213	0.98	1	3	4.5	40	28
(Feed section parts)							
6	Ball bearing, radial, single row; light series, OST 6121-39; conditional designation 213	0.98	6	3	4.5	240	168
7	Ball bearing, radial, single row; intermediate series, OST 6121-39; conditional designation 314	2.6	4	4	9	80	56
8	Ball bearing, thrust, single row; light series, OST 7219-39; conditional designation 8214	0.81	2	6	9	40	28
9	Ball bearing, radial, single row; intermediate series, OST 6121-39; conditional designation 315	3.6	1	6	9	20	14
10	Ball bearing, thrust, single row; light series, OST 7219-39; conditional designation 8205	0.12	1	6	9	20	14

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(Cutter section parts)

11	61800	Bearing housing for bearings of chain-sprocket shaft. This part is designated No 61808 in drawing of cutter section	Cast steel 15-402h	40	1	24	38	5	3
12	61809	Bushing for upper bearing of chain- sprocket shaft	Steel 3	5.5	1	12	18	10	7
13	61805	Bevel gear; 70 teeth, module 9; case-hardened to depth of 1-1.2 mm; Shore hardness 70-80	Steel 20	32	1	6	9	20	14
14	61075	Pinion-arbor; 14 teeth, module 9; case-hardened to depth 1-1.2 mm; Shore hardness 80-90	Steel 20 (chrome)	18	1	12	18	10	7
15	6107h	Gear; 18 teeth, module 9; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	1.66	1	18	24	7	5
16	61062	Pinion-arbor; 13 teeth, module 7; case- hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	13	1	12	18	10	7

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17	61073	Gear; 32 teeth, module 7; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	1h.20	1	18	2h	7	5
18	61070	Toothed coupling; 18 teeth, module 6; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	2.5	1	9	12	1h	10
19	61069	Toothed coupling; 18 teeth, module 6; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	2.2	1	12	15	10	7
20	61068	Toothed coupling; 18 teeth, module 6; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	2.2	2	12	18	20	1h
21	61067	Sleeve	Tin-phosphor bronze, 10-1	1.80	2	6	9	40	28
22	61065	Gear; 25 teeth, module 7; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	5.20	1	18	2h	7	5
23	61063	Bearing bushing	Steel 5	h	1	2h	36	5	3

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24	61061	Gear; 20 teeth, module 7; case-hardened to depth 0.7-1 mm; Shore hardness 70-90	Steel 20	7.0	1	12	15	10	7
25	61060	Ring	Steel 5	8.2	2	12	18	20	14
26	61059	Gear; 35 teeth, module 6; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	7.80	1	12	18	10	7
27	61058	Bracket	Cast steel 15-4021	8.5	1	(other data omitted)			
28	61055	Bracket	Cast steel 15-4021	10	1	(other data omitted)			
29	61808	Distance ring	Steel 3	1.67	1	9	12	14	10
30	61803	Ring	Steel 3	2.04	1	6	9	20	14
31	61811	Packing ring	Steel 3	3.52	1	18	24	7	5
32	61810	Ring	Steel 3	0.74	1	6	9	20	14
33	61096	Sectional ring; Rockwell hardness H0-H5	Steel H5	1.7	3	12	18	30	21

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34	61110	Gear wheel; hh teeth, module 6; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	6.76	1	18	24	7	5
35	61111	Reducer bushing	Steel 3	5.3	1	will last for a long time			
36	61112	Shaft /for bugduster screw/	Steel 45	13.55	1	12	18	10	7
37	61116	Bushing /appears as part 61115 in drawing of cutter sect./	Tin-phosphor bronze	0.56	2	6	9	40	28
38	61834	Slide block	Steel 3	7.7	1	12	15	13	7
39	61233	Locking pin /locks cutter-bar in position/	Steel 5	4.8	1	24	36	5	3
40	61242	Clutch fork	Cast steel 15-4024	3.15	1	18	24	7	5
41	61243	Pin	Steel 5	0.14	1	9	12	14	10
42	61244	Pin /fork pivot/	Steel 6	0.775	1	9	12	14	10
43	61245	Coupling	Steel 5	0.65	1	will last a long time			
44	61246	Slide block /on prongs of clutch fork/Rockwell hardness 55-60	Sh Kh 15 /ball-bearing steel?/	0.145	2	6	9	40	28
45	61128	Driving gear; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	3.5	1	6	9	20	14

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46	61253	Bushing	Steel 40	0.32	2	9	12	28	20
47	61451	Upper bar seat	Cast steel 15-4024	75	1	18	24	28	20
48	61807	Lower bar seat	Cast steel 15-4024	40	1	18	24	7	5
49	61267	Bushing	Steel 3	0.66	1	6	9	20	14
50	61453	Right face strip; case-hardened to depth 0.7-1 mm; Rockwell hardness 35-50	Steel 20	0.37	2	18	24	14	10
51	61454	Left face strip; case-hardened to depth 0.7-1 mm; Rockwell hardness 35-50	Steel 20	0.375	2	18	24	14	10

(Cutter bar, 2-meter, with 20 blocks)

52	59264	Bar head plate; case-hardened to depth 0.7-1 mm; Rockwell hardness 58-62	Steel 20	4.3	2	6	9	40	28
53	61435	Face strip for plate; right; case-hardened to depth 0.7-1 mm; Rockwell hardness 36-50	Steel 20	1.34	4	18	24	26	20
54	61436	Face strip for plate; left; case-hardened to depth 0.7-1 mm; Rockwell hardness 36-50	Steel 20	1.3	4	18	24	26	20

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55	61h37	Strip for plate; case-hardened to depth 0.7-1 mm; Rockwell hardness 36-50	Steel 20	1.5	4	18	24	28	20
56	61h39	Bar girder; Brinell hardness 229	Steel 45	19.8	4	will last a long time			
57	6182h	Cutter-bar head (bar iron); Rockwell hardness 50-55	Steel 45	15.2	1	12	18	10	7
(Cutter chain)									
58	60799	Set screw	Steel 40 Chrome nickel <u>1/2" H</u>	0.16	43	3	4.5	1,720	1,161
59	61209- 0 degr	Bit block; holds single bit at 0 degrees from bar horizontal plane	Cast steel 35, chrome nickel	3.8	5	6	9	100	70
60	61209- 10 degr	Bit block; holds single bit at 10 degrees from bar horizontal plane	Cast steel 35, chrome nickel	3.8	8	6	9	160	112
61	61210- 20 degr	Bit block; holds two bits at 20 degrees each side of bar horizontal plane	Cast steel 35, chrome nickel	4.8	5	6	9	100	70

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62	61210-	Bit block; holds 35 degr two bits at 35 degrees each side bar horizontal plane	Cast steel 35, chrome nickel	4.8	5	6	9	100	70
63	61210-	Bit block; holds 45 degr two bits at 45 degrees each side bar horizontal plane	Cast steel 35, chrome nickel	4.8	5	6	9	100	70
64	61211	Connector pin [connects bit blocks and link strips]	Steel 20	0.25	56	6	9	1,420	724
65	61212	Link strip	Steel 12, chrome nickel [Rh H ₃]	0.9	28	4.5	6	742	560
66	61213	Bit, stellite	U-7 [sic]	0.38	43	life depends on hardness of coal			
67	61214	Pin [through bit block; keeps bit from being pushed through]	Steel 3	0.005	43	6	9	360	602
68	60803	Spring collar [for connector pins]	NK-II [sic]	0.2	56	3	4.5	2,240	1,512
(Feed section)									
69	60906	Pinion; 12 teeth, module 8; case- hardened to depth 1.0-1.2 mm; Shore hardness 83-90	Steel 20, chrome	12.7	1	6	9	20	14

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70	60909	Beveled ring; 40 teeth, module 5; case-hardened to depth 0.7-1 mm; Shore hardness 80-90 /Ring acts on slide block 61149, of pulsator/	Steel 20	3.76	1	9	12	14	10
71	60910	Pinion; 12 teeth, module 5; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	3.2	1	6	9	20	14
72	60901	Pinion; 39 teeth, module 5; case hardened to depth 0.7-1 mm; Shore hardness 80-90 /Diagram of feed section shows this part as No 60911/	Steel 20	4.5	1	12	18	10	7
73	60901	Pinion; 11 teeth, module 5; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	2.5	1	12	18	10	7
74	60913	Gear; 32 teeth, module 5; case-hardened to depth 0.7-1 mm; Shore hardness	Steel 20	5.7	1	9	12	14	10
75	60914	Gear; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	1.31	1	12	18	10	7

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76	60901	Gear; 13 teeth, module 5; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	1.15	1	12	16	10	7
77	60916	Toothed coupling; 18 teeth, module 6; case-hardened to depth 0.7-1 mm; Shore hardness 83-90	No data	No data	[1]	6	9	20	1h
78	60917	Gear; 18 teeth, module 6; case-hardened to depth 0.7-1 mm; Shore hardness 83-90 / used in jaw clutch with part 60916	Steel 20	1.65	1	12	16	10	7
79	60928	Shaft; Rockwell hardness 40-45	Steel 45	1.42	1	6	9	20	1h
80	60932	Collar; Rockwell hardness 40-45	Steel 45	2.2h	1	6	9	20	1h
81	60937	Coupling	Steel 5	0.78	1	9	12	1h	10
82	60938	Controller shaft	Steel 5	3.07	1	12	18	10	7
83	60939	Shaft	Steel 45	0.92	1	12	18	10	7
84	60901	Bushing	Steel 3	0.09	1	12	10	10	7
85	60901	Stopper, Rockwell hardness 40-45	Steel 45	0.16	1	9	12	1h	10

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76	60901	Gear; 13 teeth, module 5; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20	1.15	1	12	16	10	7
77	60916	Toothed coupling; 18 teeth, module 6; case-hardened to depth 0.7-1 mm; Shore hardness 83-90	No data	No data	6	9	20	14	
78	60917	Gear; 18 teeth, module 6; case-hardened to depth 0.7-1 mm; Shore hardness 83-90 /used in jaw clutch with part 60916/	Steel 20	1.48	1	12	16	10	7
79	60928	Shaft; Rockwell hardness 40-45	Steel 45	1.42	1	6	9	20	14
80	60932	Collar; Rockwell hardness 40-45	Steel 45	2.24	1	6	9	20	14
81	60937	Coupling	Steel 5	0.78	1	9	12	14	10
82	60938	Controller shaft	Steel 5	3.07	1	12	18	10	7
83	60939	Shaft	Steel 45	0.92	1	12	18	10	7
84	60901	Bushing	Steel 3	0.09	1	12	18	10	7
85	60901	Stopper; Rockwell hardness 40-45	Steel 45	0.16	1	9	12	14	10

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86	60955	Pushing	Bronze	0.43	2	6	9	40	28
87	60958	Housing, clutch; tested under 6 atmospheres pressure	Steel 15- 4024	15	1	12	16	10	7
88	60959	Internal disk; Rockwell hardness 50-55 /for friction clutch/	Steel 45	0.107	9	12	16	90	63
89	60960	External disk; Rockwell hardness 50-55 /for friction clutch/	Steel 45	0.11	9	12	16	90	63
90	60961	Half clutch; case- hardened to depth 1-1.5 mm; Shore hardness 70-80 /houses external disks/	Steel 20	4.12	1	12	16	10	7
91	60963/a	Sleeve	Steel 5	1.1	1	9	12	14	10
92	60965	Roller shaft; case-hardened to depth 1.1-1.5 mm; Shore hardness 83-90 /for rope sheave?/	Steel 20	1.05	1	12	16	10	7
93	60966	Distance cylinder	Steel 3	0.78	1	will last a long time			
94	60973	Housing element	Cast steel 15-4024	5.6	1	will last a long time			

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				12	15	40	25
95 60983	Shaft; case-hardened to depth 1.1-1.5 mm; Shore hardness 83-90 [For rope sheaves?]	Steel 20	0.86	4			
96 6/60985	Sector	Steel 3	0.4	1	6	9	20 14
97 2/60985	Segment	Steel 3	0.13	1	6	9	20 14
98 60996	Bushing	Differ. [sic] pig iron	0.4	4	3	4.5	150 112
99 61147	Shaft	Steel 45	0.22	1	18	24	7 5
100 61148	Bushing	Bronze	0.37	2	6	9	40 28
101 61149	Slide block [For pulsator?]	Tin phosphor [0.5/ 10-1]	0.5	1	6	9	20 14
102 61303	Rear support	Steel 3	1.23	1	will last a long time		
103 61304	Pump chamber	Steel 5	1.15	1	will last a long time		
104 61305	Gear; 4 teeth; module 4; Rockwell hardness 40-45	Steel 45	0.2	2	12	16	20 14
105 61306	Front support	Steel 20	1.4	1	will last a long time		
106 61301	Cup	Bronze	0.09	5	will last a long time		
107 61308	Pinion; 8 teeth, module 4	Steel 5	0.3	1	12	16	10 7

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108	61309	Bushing	Bronze	0.065	1	6	9	20	11
109	63721	Special pin	Steel 5	0.01	1	12	18	10	7
110	54722	Two-way joint	Steel 5	0.01	2	will last a long time			
111	54723	Hinged joint	Steel 5	0.05	1	10	24	7	5
112	58594	Connecting pin	Steel 6	0.002	no data	12	18	10	7
113	61377	Worm, single-thread; case-hardened to depth 1-1.5 mm; Shore hardness 70-80	Steel 20	12.65	1	12	18	10	7
114	61467	Worm wheel; 38 teeth, module 10, pitch 1	Bronze	35.2	1	12	16	10	7
115	61470	Bushing	Bronze	0.6	1	12	16	10	7
116	61952	Labyrinth bushing	Steel 3	1.2	1	will last a long time			

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The GKT-3M Cutting Machine: Specifications

Length, including bar seat and shaft (mm)	2,970
Width (mm)	720
Height (mm)	305
Weight, including bar (kg)	2,000
Depth of cut, using 28-block chain (m)	2
Kerf thickness (mm)	120
Cutter-chain speed (m/sec)	1.63
Working feed speed (m/min)	0.58
Maneuvering speed (m/min)	6.6
Traction force on rope during cutting run (kg)	4,000
Traction force on rope during maneuvering run (kg)	3,000
Rope diameter (mm)	11-13
Drum capacity (m)	22-23
Motor	MA-191/3MK
Hourly capacity (kw)	25
Voltage	220/380
RPM	1,460

The GKT-3M: Maintenance and Repair Measures

Weekly inspection is the same as for the KMP-1 machine.

Current overhaul includes all the steps of inspection and the following additional ones:

Replace cutter chain with new or reconditioned one. Send worn-out chains out of mine for new connector pins, general reconditioning.

Bar covers and guide collars (No 214) [sic]. Replace vertical shaft supports with spares. The vertical shaft is the one about which the chain sprocket turns. Presumably the supports referred to are the two collars, Nos 214, 215, which hold the shaft in place at each end.

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Wash and lubricate ball bearings (No 215).

Clean bushing of sheave on end of feed section. Lubricate rope drum.

Check adjustment of friction clutch [in feed section], idling and working.

Replace plug connector and controller with new or reconditioned ones; send old ones out of mine for repair.

Check all parts of machine for lubrication; lubricate as necessary.

Check operation of machine while idling.

Determine extent of next overhaul.

Place of overhaul, composition of crew, same as for KMP-1

Intermediate overhaul includes all the steps of current overhaul and the following additional ones:

Strip down machine to its basic parts; clean and wash them in kerosine.

Replace worn parts with spares.

Replace the following parts of the cutter section: the beveled pinion (No 209), and its ball bearings (Nos 406, 1608); the vertical shaft (No 213); ball bearings (No 215); collars (No 214), top and bottom; the cutter bar and chain. Send worn parts to be repaired.

Take down friction clutch; replace worn disks and balls.

Replace rope sheave bushings.

Wash and dry electric motor. Laquer end windings of stator. Check effectiveness of insulation.

Check operation of machine and regulate as necessary.

Place of overhaul, composition of crew, time limit of operation are the same as for the KMP-1 machine.

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Capital overhaul includes all the steps of intermediate overhaul and the following additional ones:

- Repair top and bottom plates of cutter and feed sections.
- Check and recondition contact surfaces of bearing housings.
- Re-rivet bar. Replace bar lock and take-up screw.
- Replace all worn parts.
- Inspect and repair stator and rotor windings.
- Check and adjust all parts of machine.

Capital overhaul is carried in the shops and is not to exceed 11 days duration.

The frequency and order of overhauls, and the number performed per year is the same as for the KMP-1 machine.

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The GPK-3M: List of parts					Duration of service, in months:		No of parts used for ten machines during one year of cutting:	
Order No	Description of part	Material	Weight, kg	No of parts in machine	Hard cutting	Average cutting	Hard cutting	Average cutting
	(Parts, MA-121/3.K electric motor)							
1	Ball bearing; radial, No data spherical; light series, OST 6266-39; conditional designation 1208		0.42	1	12	10	10	7
2	Ball bearing, radial, " " single row; light series, OST 6121-39; conditional designation 215		1.13	1	12	18	10	7
	(Outer section)							
3	Ball bearing; radial, " " single row; light series, OST 6121-39; conditional designation 215		1.13	6	9	12	21	60
4	Ball bearing; radial, " " spherical, double row; intermediate broad series, OST 6266-39; conditional designation 1508		0.93	1	9	12	14	10

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10	Ball bearing; radial, " " single row; light series, OST 6121-39; conditional designation 218	2.22	1	9	12	14	10
11	Ball bearing; radial, " " single row; intermediate series, OST 6121-39; conditional designation 307	0.4	2	6	9	40	28
12	Ball bearing; radial, " " single row; intermediate series, OST 6121-39; conditional designation 306	0.35	1	6	9	20	14
13	Roller bearing; tapered; intermediate series, OST 333-41; conditional designation 7307	0.52	1	6	9	20	14
14	Roller bearing; tapered; intermediate series, OST 333-41; conditional designation 7310	1.2	1	9	12	14	10
15	Ball bearing; thrust, " " single row; light series, OST 7212-39; conditional designation 38217	2.3	1	9	12	14	10

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(MA 191/3M electric motor)

16	60652	Gear; 18 teeth, module 5; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20, chrome	2.3	1	6	9	20	14
17	3357	Packing ring	Felt	0.304	1	3	1.5	40	27
18	51490	Cover plate, controller	Steel 3	31.5	1	18	24	7	5
19	51945	Special pin	Steel 3	0.7	14	6	9	280	196
20	60646	Shield	Cast steel, 15-4027	23	1	18	24	7	5
21	56648	Bushing	Antifriction iron	0.6	1	6	9	20	14
22	60649	Bushing	Antifriction iron	0.5	1	6	9	20	14

(Cutter section)

23	209	Pinion; beveled; 16 teeth, module 6.35; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20, chrome	3.5	1	6	9	20	14
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24	210	Toothed coupling; 18 teeth, module 6; case-hardened to depth 0.7-1 mm; Shore hardness 80-90 <u>for jaw clutch</u>	Steel 20	2.4	1	6	9	20	14
25	211	Gear, for coupling; 18 teeth, module 6; case-hardened to depth 0.7-1 mm; Shore hardness 83-90 <u>for jaw clutch</u>	Steel 20	2.8	1	6	9	20	14
26	213	Step bearing <u>In</u> diagram of cutter section, vertical shaft bears this No	Steel 5	6.6	1	6	9	20	14
27	214	Guide collar <u>Lower</u> collar of vertical shaft	Steel 5	4.2	1	3	4.5	40	28
28	215	Upper collar <u>In</u> diagram of cutter section, this part bears No 214	Steel 5	1.53	1	3	4.5	40	28
29	58612	Pin; case-hardened to depth 0.7-1 mm; Shore hardness 70-80	Steel 20	0.07	4	12	18	40	28
30	1390	Pivot pin <u>for clutch</u> fork	Steel 3	2	1	36	48	3	2
31	1440	Shaft	Steel 5	0.02	1	9	12	14	10
32	2864	Packing ring	Rubber	0.002	2	3	4.5	80	54

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33	55808	Special pin	Steel 5	0.38	2	9	12	28	20
34	58228	Lower bar seat	Cast steel 15-40-24	44	1	24	36	5	3
35	58227	Upper bar seat	Cast steel	55	1	24	36	5	3
36	59001	Cover plate, cutter section	Cast steel 15-40-24	58	1	will last a long time			
37	59356	Clutch rod	Steel 5	0.63	1	12	18	10	7
38	59365	Clutch fork	Cast steel 15-4024	64	1	12	18	10	7
39	59359	Bottom plate, cutter section	Cast steel 15-4024	65	1	24	36	5	3
40	6139	Shaft	Steel 5	50	1	18	24	7	5
41	61300	Slide block	Sh 44 15 [sic]	5	1	3	4.5	80	56
42	60392	Locking pin [For cutter bar]	Steel 5	5.4	1	24	36	5	3
43	60391	Vertical shaft [about which chain sprocket rotates.]	Steel 6	8.76	1	12	18	10	7
44	60389	Axle box	Cast steel 15-40-24	12.9	1	24	36	5	3

In diagram of cutter section bears No 213/

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45	59646	Gear; 70 teeth, module 6.35; case-hardened; Shore hardness 80-90 / This gear keyed to chain sprocket. In diagram of cutter section bears No 212/	Steel 20	32.1	1	9	12	14	10	
46	59645	Chain sprocket; case-hardened; Shore hardness 80-90 / In diagram of cutter section bears No 267/	Steel 20	15.5	1	12	18	10	7	
47	16396	Segment	Steel 5	0.4	1	16	24	7	5	- 29 -
(Cutter bar, 2-meter, with 28 blocks)										
48	9298	Bar girder; Rockwell hardness 35-40	Steel 45	31.8	2	will last a long time				
49	59190	Bar girder; Rockwell hardness 35-40	Steel 45	14.5	2	will last a long time				
50	61298	Strap	Steel 45	4.0	4	18	24	28	20	
51	59196	Face strip for plate; case-hardened to depth 0.7-1 mm; Shore hardness 83-90	Steel 20	1.7	4 [?]	18	24	7 [?]	5 [?]	

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52	59199	Face strip for plate, left; Rockwell hardness 36-50	Steel 20	1.54	2	16	24	14	10
53	59200	Face strip for plate, right; Rockwell hardness 35-50	Steel 20	1.54	2	16	24	14	10
54	59261	Bar strap	Cast steel 1540	4.04	1	12	16	10	7
55	59263	Shield plate	Steel 3	1.4	2	16	24	14	10
56	59265	Cutter bar head (bar iron); Shore hardness 50-55	Cast steel 4512	11.7	1	12	16	10	7
57	59264	Bar head plate; case-hardened to depth 0.7-1 mm; Shore hardness 83-90	Steel 20	4.3	2	6	9	40	28
58	59262	Tension screw	Steel 5	2.37	1	18	24	7	5
59	253	Bar-seat bushing	Bronze	0.6	2	6	9	20	14
60	59266	Bearing	Steel 3	1.2	2	16	24	14	10
61	61279	Upper strap	Steel 45	9.3	2	16	24	14	10

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(Nine-row, 28-block cutter chain, with single -strip links)

62	60802	Pin /through bit block, keeps bit from being pushed through/	Steel 3	0.004	28	3	4.5	1,120	766
63	60803	Spring collar /for connector pins/	NK-III	0.005	56	3	4.5	2,240	1,512
64	60801	Connector pin; case-hardened to depth 0.7-1 mm; Shore hardness 87-90 /connects bit blocks, link strips/	Steel 20	0.22	56	4.5	6	1,512	1,120
65	60805	Link strip; case-hardened to depth 0.7-1 mm; Shore hardness 75-80; sand blasted	Steel 20	0.9	28	4.5	6	1,120	560
66	60799	Set screw; Rockwell hardness 40-45	Steel 40 chrome nickel	0.16	43	3	4.5	1,720	1,161
67	60796	Bushing; Rockwell hardness 50-55	Steel 45	0.45	1	3	4.5	40	27
68	61201	Bit block; holds two bits at 11 degrees each side bar horizontal plane; Brinell hardness 255-307; sand blasted	Cast steel 35, chrome nickel	3.5	5	6	9	100	60

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69	6121	Bit block; holds two bits at 25 degrees each side bar bar horizontal plane	Cast steel 35, chrome nickel	3.5	5	6	9	100	60
70	6121	Bit block; holds two bits at 40 degrees each side bar horizontal plane	Cast steel 35, chrome nickel	3.5	5	6	9	100	70
71	6121	Bit block; holds single bit at 0 degrees from bar horizontal plane	Cast steel 35, chrome nickel	3.5	5	6	9	100	70
72	6121	Bit block; holds single bit at 10 degrees from bar horizontal plane	Cast steel 35, chrome nickel	3.5	8	6	9	260	110

(Bugduster)

73	59153	Spring collar; Rockwell hardness 36-38	Steel 45	0.043	4	9	No data	No data	No data
74	59361	Gear; 18,23 teeth; module 6.4; case-hardened to depth 0.4-0.6 mm; Shore hardness 80-90	Steel 20, chrome	2.1	1	12	24	7	5
75	59362	Cylindrical gear; 43 teeth; module 4; case-hardened to depth 0.4-0.6 mm; Shore hardness 80-87	Steel 20, chrome	1.6	1	18	24	7	5

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76	59369	Spring collar; Rockwell hardness 60-65	Steel 45	0.015	2	3	4.5	80	54
77	59160	Spring collar; Rockwell hardness 60-65	Steel 45	0.02	2	3	4.5	80	51
78	59387	Control pin	Steel 20	0.018	4	1	1.5	480	360
79	61356	Spiral guard	Steel 15- 4024	30	1	will last a long time			
80	61357	Support bracket	Cast steel 15-4024	6.3	1	will last a long time			
81	61354	Pinion; 10 teeth, module 4; case- hardened to depth 0.7-0.6 mm; Shore hardness 80-87	Steel 20, chrome	0.83	1	12	18	10	7
82	61359	Cylindrical gear; 36 teeth, module 4	Steel 20, chrome	1.75	1	18	24	7	5
83	61360	Shaft <u>for spiral</u>	Steel 45	11.3	1	will last a long time			
84	61361	Ring	Steel 3	0.05	2	3	4.5	80	56
85	61366	Bushing	Steel 40	0.31	2	3	4.5	80	56
86	61368	Pipe	Steel 3	0.46	2	3	4.5	80	56
87	61371	Shoe	Steel 3	3.2	1	will last a long time			
88	61354	Sector	Cast steel 15-4024	2.6	1	will last a long time			

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				0.47	1	3	4-5	40	27
89	61373	Bushing	Bronze, OTS [sic] 6-63						
			(Feed section)						
90	3416	Bushing	Antifriction iron	0.35	1	6	9	20	14
91	3431	Bearing housing	Cast steel 15-4021	2.3	1	24	36	5	3
92	3432	Clutch fork	Cast steel 15-4021	6.5	1	12	18	10	7
93	3433a	Pivot pin [for clutch fork]	Steel 5	1.36	1	9	12	14	10
94	3435	Clutch rod	Steel 3	2.7	1	12	18	10	7
95	3453	Pin	Steel 5	0.11	1	9	12	14	10
96	3478	Pin; case-hardened to depth 1-1.5mm; Shore hardness 75-85 /probably go inside sleeves, No 3886/	Steel 20	1.5	4	12	18	40	28
97	3446a	Controller shaft	Steel 3	2.22	1	12	18	10	7
98	3566	Pin	Steel 20	0.3	1	6	9	20	14

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99	3580	Core; case-hardened to depth 0.7-1 mm; Shore hardness 75-85 /Keyed to eccentric shaft, internal rings of friction clutch/	Steel 20	2.65	1	will last a long time			
100	3871	Turbo-disk /Lubricating oil forced out through radial tubes/	Steel 3	0.92	1	12	18	10	7
101	3874	Pinion; 11 teeth, module 5; case-hardened to depth 0.7-1 mm; Shore hardness 80-90	Steel 20, chrome	2.1	1	12	18	10	7
102	3886	Sleeve	SCh 36 /sic/	0.8	4	6	9	20	14
103	3883	Cylindrical gear; 50 teeth, module 5; case-hardened to depth 0.7-1 mm; Shore hardness 75-85	Steel 20	3	1	18	24	7	5
104	59333	Double gear, cylindrical and bevel; case-hardened to depth 0.7-1 mm; Shore hardness 80-90 /Acts on lower ring of friction clutch, No 5762/	Steel 20, chrome	4.24	1	12	18	10	7
105	4345	Adjusting pin	Steel 20	0.19	4	6	9	20	14

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					10	1	9	12	14	10
106	h429	Triple-crown gear; center, 32 teeth, module 7; ends, 28 teeth, module 7; case-hardened to depth 1-1.5 mm; Shore hardness 80-90. End crowns are helical. Gear transmits planetary drive to rope drum	Steel 12, chrome N ₃ [sic]							
107	h439	Flange	Steel 5	0.5	1		18	24	7	5
108	h440	Left-handed nut /houses screw No h441/	Steel 3	2.33	1		12	18	10	7
109	h441	Left-handed screw /Is turned by control handle on outside of machine. Moves clutch rod, shifting friction clutch/	Steel 5	1.41	1		16	24	7	5
110	h445	Thrust bearing ring	Steel 40	0.02	10		6	9	50	35
111	h448	Shaft /for sheave No h449/	Steel 20	2.11	1		12	18	10	7
112	h449	Sheave /rope/; case-hardened to depth 1-1.5 mm; Shore hardness 75-85	Steel 20	1.64	1		18	24	7	5
113	h477	Sleeve ring	Steel 5	0.12	1		6	9	20	14
114	h585	Rod /probably to controller/	Steel 3	3.7	1		12	16	10	7

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115	50838	Sheave /rope/ case-hardened to depth 0.7-1 mm; Shore hardness 75-85	Steel 20	0.79	2	12	18	20	14
116	50834	Shaft /for sheave No 50833	Steel 20	0.26	2	12	18	10	7
117	55782	Eccentric shaft; Brinell hardness 220-240 /transmits motion to gear No 4429	Steel 45	5.02	1	9	12	14	10
118	55799	Sheave /rope/ ; case-hardened to depth 1-1.5 mm; Shore hardness 75-80	Cast steel 15-4024	6	4	12	18	40	28
119	57710	Beveled pinion; 11 teeth, module 4; case-hardened to depth 0.4-0.7 mm; Shore hardness 80-90	Steel 20 chrome nickel	0.93	1	9	12	14	10
120	58636	Coupling	Steel 5	1.54	1	12	18	10	7
121	59300	Spring /for tension in clutch- shifting mechanism	Steel 65, 8 /sic/	0.93	1	9	12	14	10
122	59301	Bearing cover	Steel 3	0.77	1	12	18	10	7

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123	59302	Spring collar	Steel 45	0.05	1	9	12	14	10
124	59326	Thrust bearing	Steel 45	0.05	8	12	18	80	56
125	59731	Special pin	Steel 5	0.01	1	9	12	14	10
126	60398	Holding screw	Steel 3	0.194	1	12	18	10	7
127	60531	Internal helical gear; right handed; 33 teeth, module 7; case-hardened to depth 1-1.5 mm; Shore hardness 80-90 / Stationary, fixed to bottom plate, feed section. Bottom crown of gear No 4429 meshes with it	Steel 12 Kh N ₃	4.9	1	6	9	20	14
128	60532	Internal helical gear; left handed; 33 teeth, module 7 / Fixed to top part of feed section. Top crown, gear 4429 meshes with it	Steel 12 Kh N ₃	4.9	1	6	9	20	14
129	3884	Cylindrical gear; 65 teeth, module 5; case-hardened to depth 0.7-1 mm; Shore hardness 75-85 / Acts on upper ring of friction clutch, No 57613	Steel 20	8.66	1	12	18	10	7
130	59726	Segment	Steel 3	0.12	1	18	24	7	5

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131	59727	Sleeve	Steel 3	1.5	1	will last a long time			
132	3441	Sleeve /for clutch-rod handle/	Steel 3	1.25	1	will last a long time			
133	4442	Hub /for friction-clutch control handle/	Steel 3	0.47	1	will last a long time			
134	4432	Internal gear; 37 teeth, module 7; case-hardened to depth 1-1.5 mm; Shore hardness 80-90 /Keyed to inside of rope drum; is turned by center crown of gear No 4429/	Steel 12, Kh N3	6.19	1	18	24	7	5
135	58221	Rope drum	Cast steel 15-4025	22.4	1	36	48	3	2
136	3410	External disk; Rockwell hardness 50-55 /for friction clutch/	Steel 45	0.15	7	6	9	120	84
137	3411	Internal disk; Rockwell hardness 50-55 /for friction clutch/	Steel 45	0.16	8	6	9	160	112
138	57673	Ring, with flat teeth on face; Shore hardness 83-90 /On top of friction clutch, engages lugs on face of gear No 3884/	Steel 20 chrome	1.5	1	9	12	14	10

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139	57672	Ring; with flat teeth on face; Shore hardness 83-90 /On bottom of friction clutch, engages lugs on face of gear No 59333/	Steel 20 chrome	3.6	1	9	12	14	10
		[?]							
140	59376	Compression spring	NK-11	0.015	1	will last a long time			
141	61286	External ring; Rockwell hardness 50-55 /External disks of friction clutch are keyed to it/	Steel 40 chrome	2.2	1	12	18	10	7
142	61287	Holding ring; Rockwell hardness 50-55, /Holds friction clutch/	Steel 40 chrome	2.05	1	12	18	10	7
143	61288	Spring collar /Holds top friction-clutch ring in place/	Steel 45	0.1	1	6	9	20	14
144	61284	Wire ring /Bushing for spring collar, No 61288/	Copper	0.093	1	1	1.5	120	80
145	OSF /sic/	Ball /These balls run between grooves of holding ring and external ring, serving as a bearing for rotation of the friction clutch in the holding ring/	Steel	0.007	52	3	4.5	40	27

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